IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: KIM

Serial No.:   Not Yet Assigned   Group Art Unit: Not Yet Assigned

Filed: May 2, 2001   Examiner: Not Yet Assigned

Title: MULTIPROCESSOR COMMUNICATION SYSTEM AND METHOD

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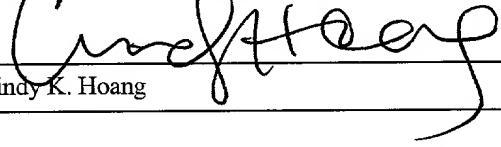
Cindy K. Hoang

PRELIMINARY AMENDMENT

Sir:

Please preliminarily amend the above-identified application as follows:

IN THE SPECIFICATION

Please replace the below identified paragraphs in the specification with the following "clean" versions of those paragraphs which include the amendments noted in the attached Appendix to this Preliminary Amendment.

On page 1, please replace the paragraph beginning on the fourth line from the bottom of the page and continuing to the seventh line on page 2, with the following paragraph:

-- The conventional dedicated resource for each processor with the shared "Mail Box" scheme prevents the multiple processors from competing with each other for the same resource, but suffers greatly in terms of access speed both since the data and commands must all pass through the "Mail Box" which has a relatively narrow bandwidth. In addition, duplicative resources are necessary since each processor has its own dedicated and duplicated resources. Although the scheme works quite well when the tasks for the processors are well defined and

common mailbox data transfer size is relatively small, the actual performance and resource utilization suffers greatly when the tasks are not well defined and the processors are therefore more interdependent. Thus, there is a need in the art for a system and method which permits multiple processors to communicate with each other and control the access to the shared resources. --

On page 8, please replace the paragraph beginning on the fourth line from the bottom of the page and continuing through the fourteenth line of page 9, with the following paragraph:

-- The first and second mailboxes 70a, 70b preferably generate a hardware interrupt signal when the respective mailboxes 70a, 70b are "full." A mailbox is considered "full" when it contains a process message for instructing one of the processors to start a particular task which will be described in more detail with reference to Figure 3. The hardware interrupt signal interrupts the respective processor 12, 14 (IRQ-IBF interrupts the host processor 12 while IRQ-OBF interrupts the coprocessor 14) and causes the processor 12, 14 to service the interrupt by reading the message from the mailbox 70a, 70b. Upon reading the message from the mailbox 70a, 70b, the processor 12, 14 clears the task message from the mailbox and the mailbox 70a, 70b generates an acknowledge signal to notify the other processor 12, 14 (in a dual processor implementation) that the mailbox is empty (ACK-OBE notifies the host processor 12 while ACK-IBE notifies the coprocessor 14) and that the task is being completed. Messages are written to (OBW/IBW) (i.e., clearing the mailbox) and read from (OBR/IBR) the mailboxes 70a, 70b by the processors 12, 14 via the respective data busses 64, 66. The mailboxes 70a, 70b may be implemented as a set of registers located in C800-4010 and C800-4020 with dual-ported 32 bit registers, where the C800-4010 was dedicated for the CPU inbox and the C800-4020 was dedicated for the COP inbox. It was assigned such that the COP could send messages to the CPU via the C800-4010 "Inbox" register while the CPU would send messages to the COP via the C800-4020 "Outbox" register. --

On page 11, please replace the paragraph beginning at the second to last line of the page and continuing through line 5 of page 12, with the following paragraph:

--   The coprocessor then acquires the availability of the resources necessary to do the tasks by reserving the semaphore register hits 68. Upon confirmed availability of the resources, the coprocessor 14 would run to complete the requested tasks and inform the host processor 12 that the task had been completed by writing completion message through the mailbox 70b register. The mailbox 70b would then generate an interrupt signal (IRQ-IBF) to interrupt the host processor 12 causing it to service the interrupt by reading the completion message from the mailbox 70b via the first memory data bus 64. --

On page 12, please replace the first full paragraph with the following paragraph:

--   In order to expedite the inter-processor communication, the mailbox 70a controller could be programmed to acknowledge the host processor 12 with ACK-OBE when the coprocessor takes (reads) the command written by host processor. Similarly, the mailbox 70b controller could be also programmed to acknowledge the coprocessor 14 with ACK-IBE when the host processor takes (reads) the completion message. This hardware assisted inter-locked feed-back process helps to synchronize the work-in-progress to confirm when the second processor has received the message from the first processor and vice versa. --

REMARKS

Applicant submits this preliminary amendment with the application as filed. After signing the declaration, the inventor noticed minor spelling and grammatical errors in the specification. The above amendments are intended to clarify such errors. It is respectfully submitted that no new matter is added by way of this amendment.

Any fee due for this Amendment may be charged to Deposit Account No. 07-1896.

Respectfully submitted,

Dated: ___May 2___, 2001   _____

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Attorney for Applicant

APPENDIX

On page 1, in the second to last line on the page, please replace "sinceboth" with – both since --, and please replace "command" with – commands --;

On page 2, first line, please replace "requires" with – has --, and in the third line, please insert -- common – before "mailbox";

On page 9, on lines 10-14, please replace "C800:4010" (every occurrence) with – C800-4010 --, and please replace "C800:4020" (every occurrence) with – C800-4020 --;

Also on page 9, lines 11 and 13, please insert – the – before "CPU", and on line 12 please insert – the – before "COP" (every occurrence);

On page 11, in the second to last line on the page, please replace "would then acquire" with – then acquires --, and in the last line on the page, please replace "bits" with – hits --; and

On page 12, line 3, please replace "than" with – then --, and in the last line of the first full paragraph on the page, please replace "received" with -- received --, and "visa" with – vice --.